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EXAMINER	
WONG, BLANCHE	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/670,711	BARKER ET AL.	
	Examiner	Art Unit	
	Blanche Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15* is/are allowed.

6)☒ Claim(s) *1-5,7-14,16,18 and 20-26* is/are rejected.

7)☒ Claim(s) *6,17,19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 4,7-13,20-26** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 7, it is unclear how to "[transmit] the data from the selected port" in line 15, when the selected port is one selected "to send data" in lines 5-6. Similarly in claim 20.

3. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "polling results" in line 2.

Claim 7 recites the limitation "the physical layer device" in line 13.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1,2,5,14** are rejected under 35 U.S.C. 102(e) as being aniticipated by Levy (Pub No. US 2004/0088469).

With regard to claim 1, Levy discloses

selecting one of a plurality of ports **(select one or more ports 112) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in a physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])** to which to send data **(to feed with transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**; and

transmitting data **(flow of data units)** from a transmit buffer **(the child agent transmit buffer 134)** in the first clock domain **(child agent)** to the selected port **(ports 112) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])** in the physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])**.

With regard to claim 2, Levy further discloses

selecting **(select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**, in the first clock domain **(child agent) (child agent 136 ... to establish a link with a parent device, para. [0032])**, one of a plurality of ports **(ports 112) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in a physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])** to which to send data **(to fee with transmit buffer)**

(select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032]).

With regard to claim 5, Levy further discloses

polling **(presence detect)** each of the plurality of ports **(each device cycles through a presence detect [of ports] ... , para. [0043)** in the physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])** to determine available ports **(presence or ports that are connected to another device) (each device cycles through a presence detect and disables ports that are not connected to another device, para. [0043)** which may receive data;

sending the polling results to the first clock domain **(child agent) (child agent 136 ... to establish a link with a parent device, para. [0032])**; and

selecting, in the first clock domain **(child agent)**, a port from the available ports **(ports 112) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])** included in the physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])** to which to send data **(flow of data units) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])**.

With regard to claim 14, Levy discloses

a transmit buffer **(transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** in a first clock domain **(child agent, para. [0032])**;

a physical layer interface **(see ports in devices in Fig. 2)**, in a second domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])**, the physical layer interface including a plurality of physical layer devices **(see devices in Fig. 2)**; and

logic coupled to the transmit buffer and physical layer interface, and adapted to:

selecting one of a plurality of ports **(select one or more ports 112) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in a physical layer interface **(see ports in devices in Fig. 2)** to which to send data **(to feed with transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**; and

transmitting data **(flow of data units)** from a transmit buffer **(the child agent transmit buffer 134)** to the selected port **(ports 112) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])** in the physical layer interface **(see ports in devices in Fig. 2)**.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 3,7,10,16,18,20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy in view of Fischer (U.S. Pat No. 6,807,640).

With regard to claims 3 and 18, Levy discloses the method of claim 1 and the apparatus of claim 16 respectively. However, Levy fails to explicitly show transmitting data for the selected port from the transmit buffer to an asynchronous buffer; transmitting the data from the asynchronous buffer to an internal buffer of a physical layer device included in the physical layer interface, the physical layer device including the selected port; and transmitting the data from the internal buffer of the physical layer device to the selected port.

Fischer discloses transmitting data between devices of multiple clock domains by

transmitting data for the selected port from the transmit buffer **(source memory 223 in data source 211 in Fig. 2)** to an asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)**;

transmitting the data from the asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)** to an internal buffer **(adjunct memory 224 in interface controller 213 in Fig. 2, col. 3, line 29)** of a physical layer device **(an output device) (interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50)** included in the physical layer interface **(interface controller)**, the physical layer device including the selected port; and

transmitting the data from the internal buffer **(adjunct memory 224 in interface controller 213 in Fig. 2, col. 3, line 29)** of the physical layer device **(an output device)**

(interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50) to the selected port.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine transmitting data for the selected port from the transmit buffer to an asynchronous buffer; transmitting the data from the asynchronous buffer to an internal buffer of a physical layer device included in the physical layer interface, the physical layer device including the selected port; and transmitting the data from the internal buffer of the physical layer device to the selected port as taught in Fischer with Levy for the benefit of a transmitting data across multiple clock domains, to obtain the invention as specified in claims 3 and 18.

With regard to claim 7, Levy discloses establishing links and transmitting data between devices by

selecting one of a plurality of ports **(select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in one of a plurality of physical layer devices **(see devices in Fig. 2)** included in one of a plurality of physical layer interfaces **(see ports in devices in Fig. 2)** to which to send data **(to feed with transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**, each of the plurality of physical layer devices **(see devices in Fig. 2)** operating in the other clock domain **(each device's individual timing)**; and

transmitting the data to the selected port **(flow of data units) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])**.

However, Levy fails to explicitly show transmitting data for the selected port from a first buffer operating in the first clock domain to an asynchronous buffer, the asynchronous buffer corresponding to the one of the plurality of physical layer interfaces; and transmitting the data from the asynchronous buffer to the one of the plurality of physical layer device that includes the selected port.

Fischer discloses transmitting data between devices of multiple clock domains by transmitting data **(data source 211)** for the selected port from a first buffer **(source memory 223 in data source 211 in Fig. 2)** operating in the first clock domain **(a first clock) (the data source 211 operates in accordance with a first clock, col. 2, lines 47-48)** to an asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)**, the asynchronous buffer corresponding to the one of the plurality of physical layer interfaces **(interface controller 213 in Fig. 2, col. 2, line 46)**; and transmitting the data from the asynchronous buffer to the one of the plurality of physical layer devices **(an output device) (interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50)** that includes the selected port.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine transmitting data for the selected port from a first buffer operating in the first clock domain to an asynchronous buffer, the asynchronous buffer corresponding to the one of the plurality of physical layer interfaces; and transmitting the data from the asynchronous buffer to the one of the plurality of physical

layer device that includes the selected port as taught in Fischer with Levy for the benefit of a transmitting data across multiple clock domains, to obtain the invention as specified in claim 7.

With regard to claim 10, the combination of Levy and Fischer discloses the method of claim 7.

Fischer further discloses

transmitting data **(the data source 211, col. 2, lines 47-48)** from an internal buffer **(source memory 223 in data source 211 in Fig. 2)** of one of the plurality of physical layer devices **(an output device) (interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50)** to the selected port **(interface controller 212)**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine transmitting data from an internal buffer of one of the plurality of physical layer devices to the selected port as taught in Fischer with Levy for the benefit of a transmitting data across multiple clock domains, to obtain the invention as specified in claim 10.

With regard to claim 16, Levy discloses

a transmit buffer **(transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** in a first clock domain **(child agent, para. [0032])**;

a physical layer interface **(see ports in devices in Fig. 2)**, in a second domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])**, the physical layer interface including a plurality of physical layer devices **(see devices in Fig. 2)**;

control logic adapted to:

polling **(presence detect)** each of the plurality of ports **(each device cycles through a presence detect [of ports] ... , para. [0043)** in the physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])** to determine available ports **(presence or ports that are connected to another device) (each device cycles through a presence detect and disables ports that are not connected to another device, para. [0043)** which may receive data;

sending the polling results to the first clock domain **(child agent) (child agent 136 ... to establish a link with a parent device, para. [0032])**; and

select logic adapted to:

select **(select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**, in the first clock domain **(child agent) (child agent 136 ... to establish a link with a parent device, para. [0032])**, a port from the available ports **(ports 112) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in a physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para.**

[0032]) to which to send data **(to fee with transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**; and

transmitting data **(flow of data units)** from a transmit buffer **(the child agent transmit buffer 134)** in the first clock domain **(child agent)** to the selected port **(ports 112) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])** in the physical layer interface **(see ports in devices in Fig. 2)** in the second clock domain **(parent device) (child agent 136 ... to establish a link with a parent device, para. [0032])**.

However, Levy fails to explicitly show an asynchronous buffer coupled to a transmit buffer.

Fischer discloses an asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)** coupled to the transmit buffer **(source memory 223 in data source 211 in Fig. 2)**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine an asynchronous buffer coupled to the transmit buffer as taught in Fischer with Levy for the benefit of a transmitting data across multiple clock domains, to obtain the invention as specified in claim 16.

With regard to claim 20, Levy discloses establishing links and transmitting data between devices by

a transmit buffer **(transmit buffer) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])** in a first clock domain **(child agent)**; and

logic adapted to:

selecting one of a plurality of ports **(select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])** included in one of a plurality of physical layer devices **(see devices in Fig. 2)** included in one of a plurality of physical layer interfaces **(see ports in devices in Fig. 2)** to which to send data **(to feed with transmit buffer) (select one or more ports 112 to feed with its [child] agent transmit buffer, para. [0032])**;

transmitting the data to the selected port **(flow of data units) (the flow of data units from the [child] agent transmit buffer 134 to the ports 112, para. [0032])**.

However, Levy fails to explicitly show an asynchronous buffer coupled to the transmit buffer; a physical layer interface, in another clock domain, coupled to the asynchronous buffer, the physical layer interface including a plurality of physical layer devices; logic adapted to: transmit data for the selected port from the transmit buffer to the asynchronous buffer and transmit the data from the asynchronous buffer to one of the plurality of physical layer devices, the one of the physical layer devices including the selected port.

Fischer discloses transmitting data between devices of multiple clock domains by

an asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)** coupled to the transmit buffer **(source memory 223 in data source 211 in Fig. 2)**;

a physical layer interface **(interface controller 213 in Fig. 2, col. 2, line 46)**, in another clock domain **(second clock) (interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50)**, coupled to the asynchronous buffer, the physical layer interface including a plurality of physical layer devices **(output device)**;

logic adapted to:

transmitting data **(data source 211)** for the selected port from the transmit buffer **(source memory 223 in data source 211 in Fig. 2)** to the asynchronous buffer **(asynchronous buffer 212 in Fig. 2, col. 2, lines 45-46)**; and

transmitting the data from the asynchronous buffer to the one of the plurality of physical layer devices **(an output device) (interface controller 212 operates in accordance with a second clock, which second clock is the clock for an output device, col. 2, line 50)**, the one of the physical layer devices including the selected port.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine an asynchronous buffer coupled to the transmit buffer; a physical layer interface, in another clock domain, coupled to the asynchronous buffer, the physical layer interface including a plurality of physical layer devices; logic adapted to: transmit data for the selected port from the transmit buffer to the asynchronous buffer and transmit the data from the asynchronous buffer to one of the plurality of physical layer devices, the one of the physical layer devices including the

selected port as taught in Fischer with Levy for the benefit of a transmitting data across multiple clock domains, to obtain the invention as specified in claim 20.

8. **Claims 9,11,22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy and Fischer as applied to claim 7 above, and further in view of Zheng (U.S. Pat No. 5,392,280).

With regard to claims 9 and 22, the combination of Levy and Fischer discloses the method of claim 7 and the apparatus of claim 20 respectively. However, the combination fails to explicitly show transmitting data between a synchronous domain and an asynchronous domain.

Zheng discloses communication among synchronous and asynchronous networks, **col. 1, lines 15-16**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine communication among synchronous and asynchronous networks as taught in Zheng with Levy and Fischer for the benefit of transmitting data between a synchronous domain and an asynchronous domain, to obtain the invention as specified in claims 9 and 22.

With regard to claim 11, the combination of Levy and Fischer discloses the method of claim 7. However, the combination fails to explicitly show selecting one of a plurality of ports using a round robin algorithm.

Zheng discloses transmission utilizing a round robin scheduling system, **col. 5, line 51**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, to combine transmission utilizing a round robin scheduling system as taught in Zheng with Levy and Fischer for the benefit of transmitting data between a synchronous domain and an asynchronous domain, to obtain the invention as specified in claim 11.

Allowable Subject Matter

9. **Claim 15** is allowed.

10. Claims 6,17,19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 15, the prior art of record fails to anticipate or make obvious "a second physical layer interface, in a third clock domain, coupled to the second asynchronous buffer". Fischer discloses multiple clock domains. However, Fischer does not teach a second physical layer interface coupled to a second asynchronous buffer. Arguably, even if a second set of physical layer interface and asynchronous buffer are disclosed in Fischer, Fischer does not teach a second physical layer interface coupled to a second asynchronous buffer in a third clock domain.

Kauschke et al. (Pub No. US2005/0013250 A1) discloses a first and second data transmission rate, but Kauschke does not teach "a second physical layer interface, in a third clock domain, coupled to the second asynchronous buffer".

12. Claims 4,8,12,13,21,23-26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BW
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